Governor's Drought Advisory Committee Meeting

March 9, 2006

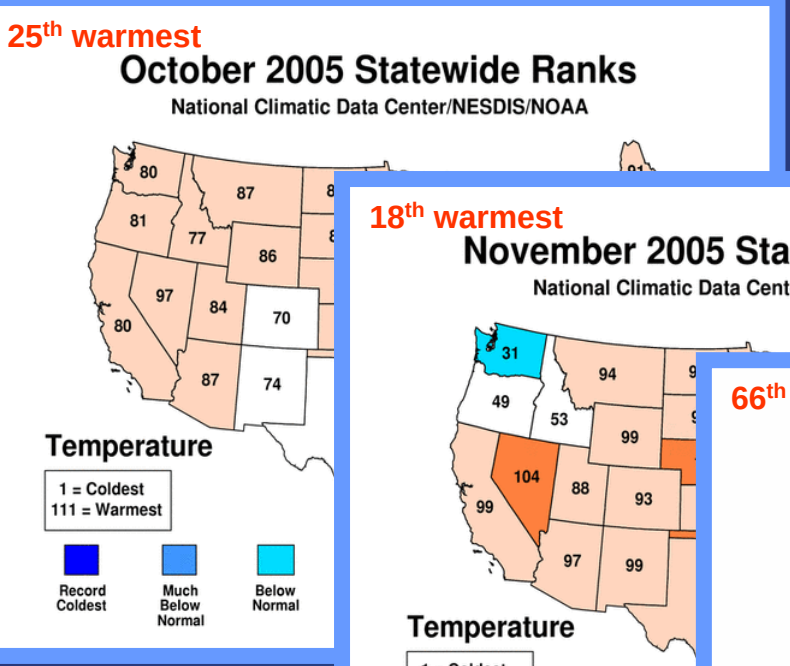
National Weather Service

Gina Loss

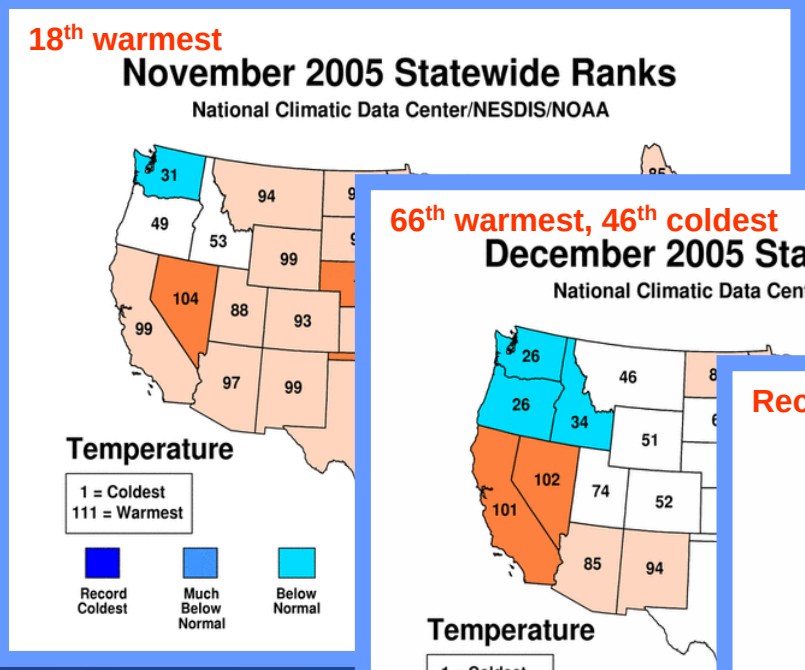
Temperature Rankings

Averaged Across Entire State

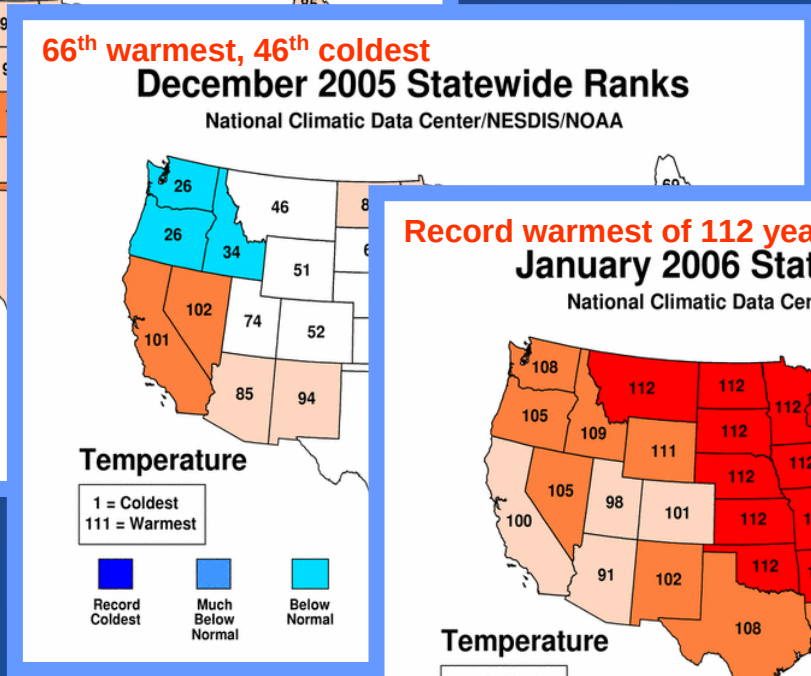
25th warmest



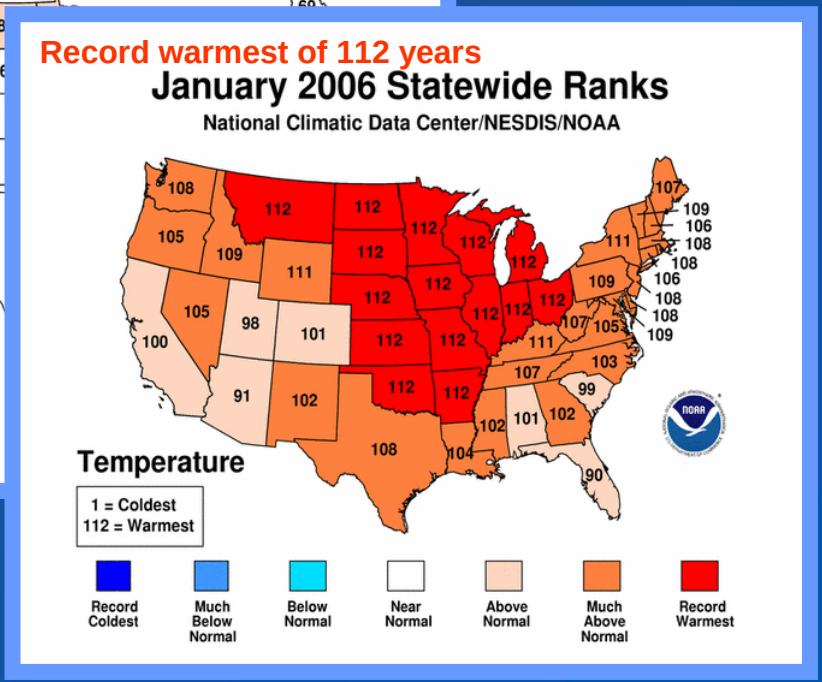
18th warmest



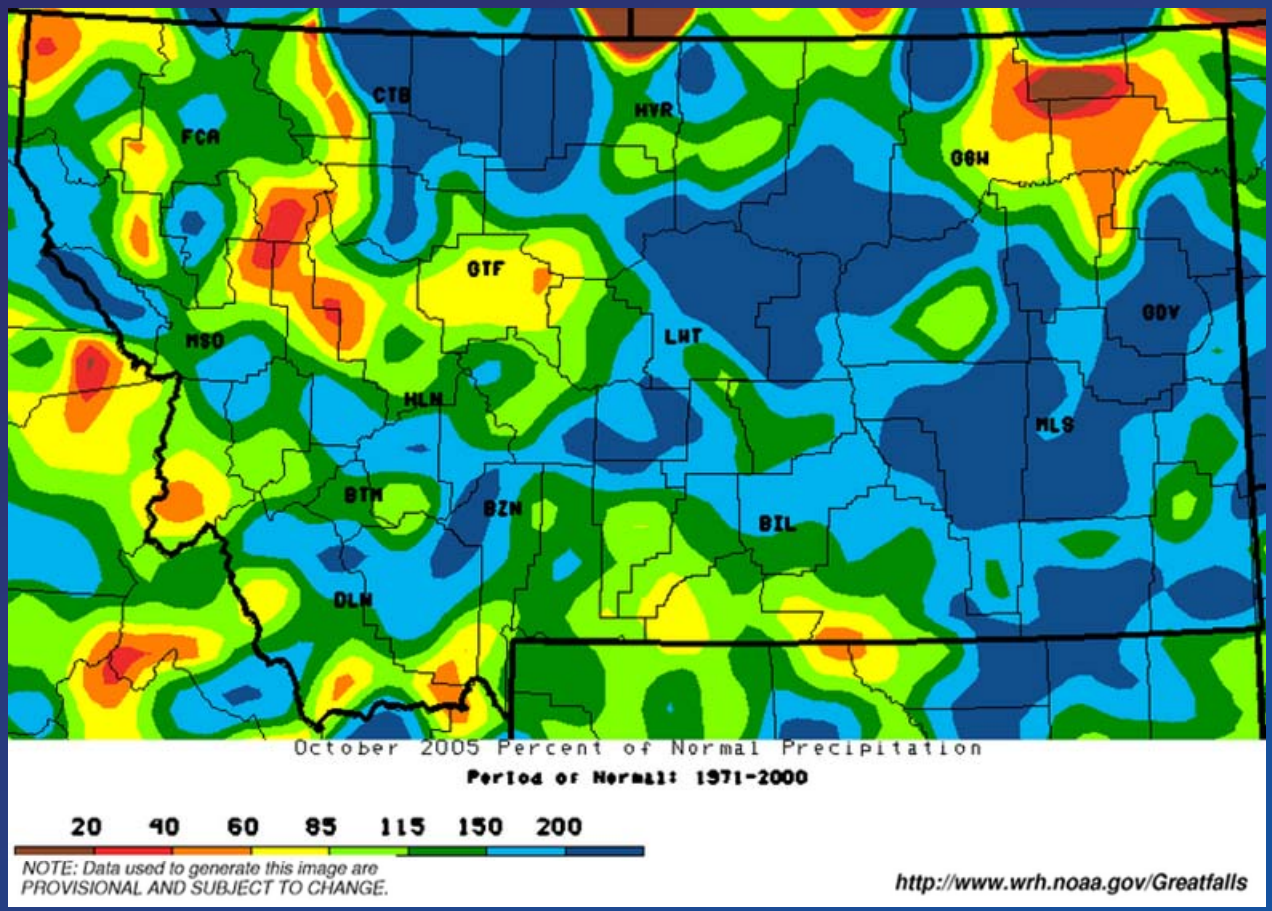
66th warmest, 46th coldest



Record warmest of 112 years

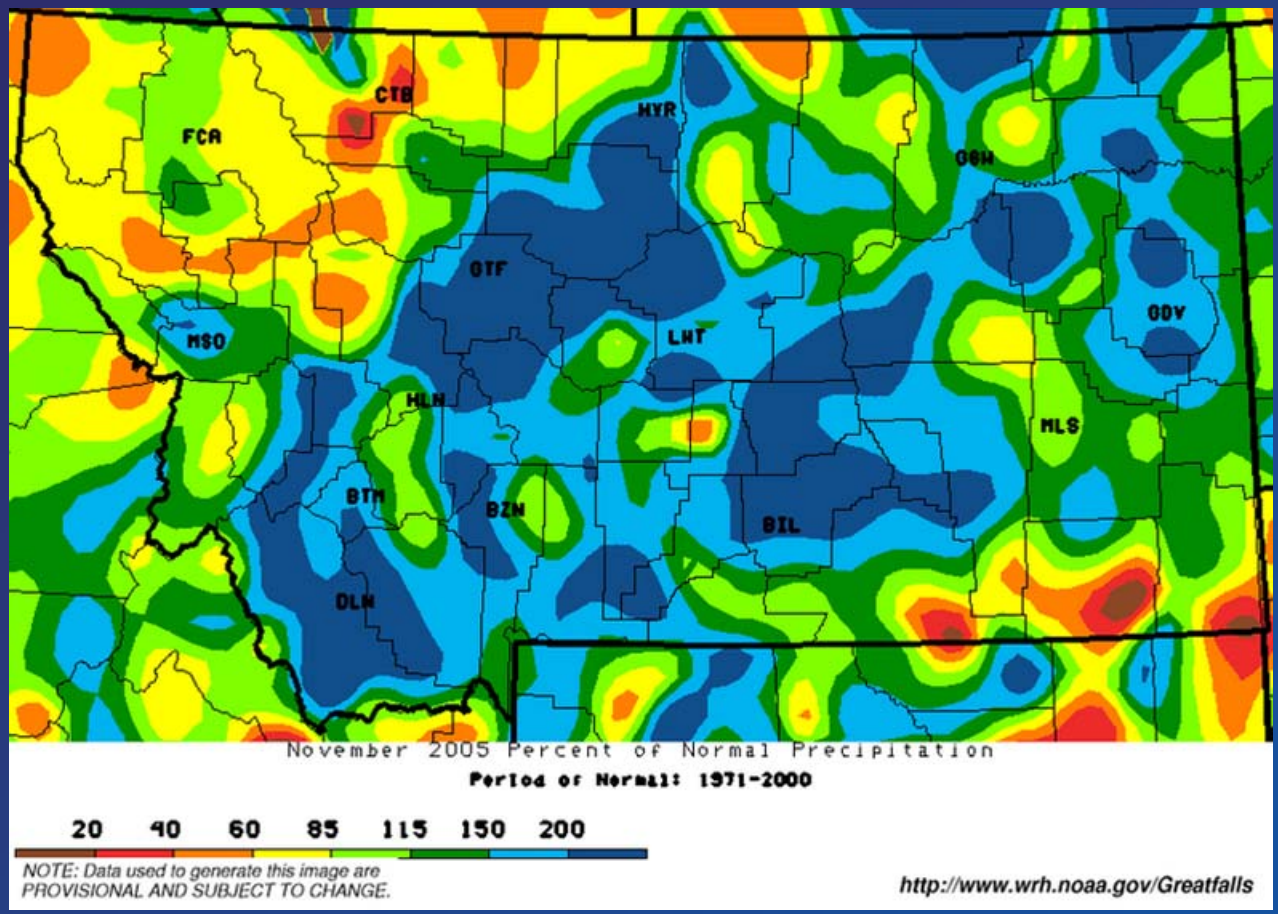


Percent of Normal Precipitation
October 2005



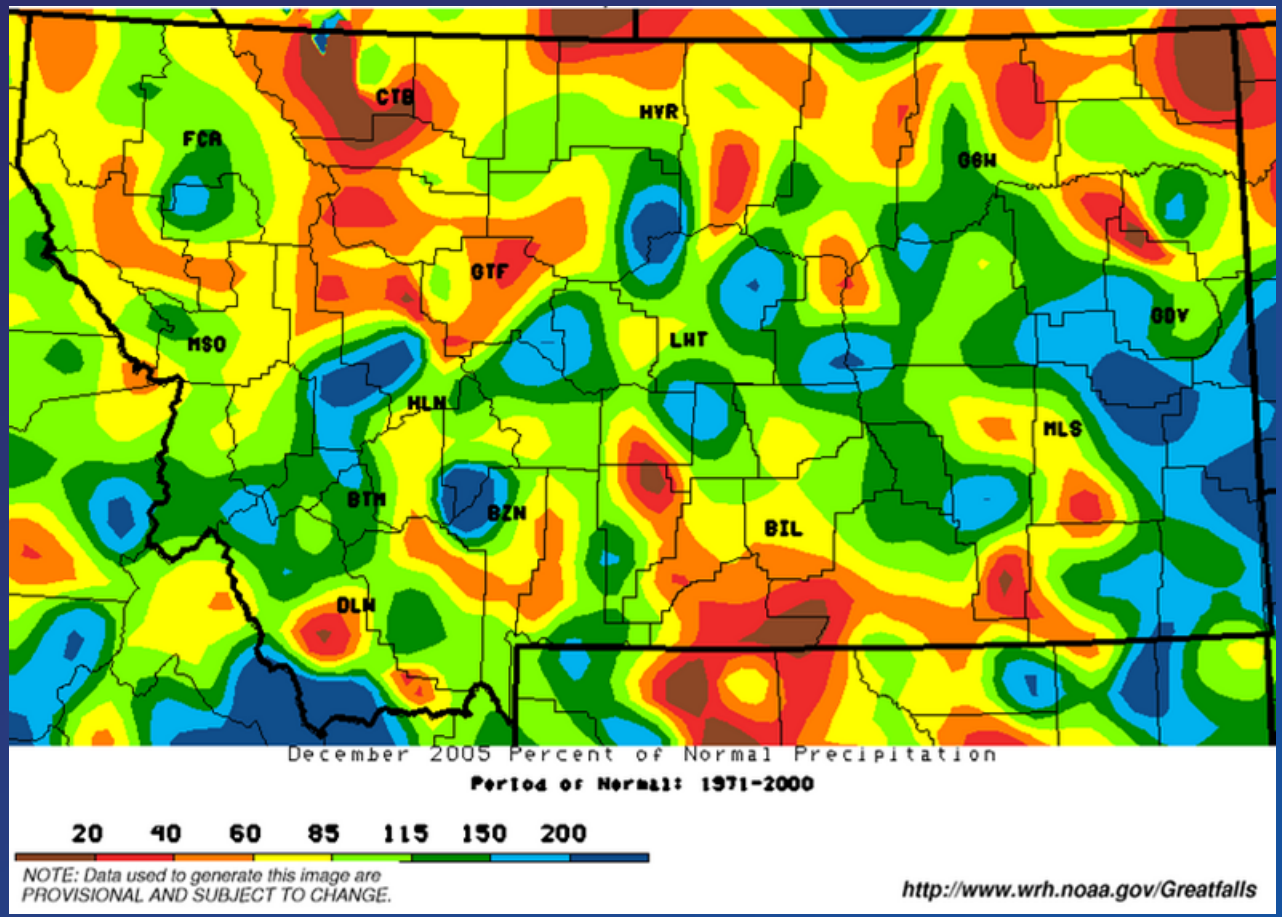
- Most of state near to above normal
- Large areas well above normal
  - *North central – central – southeast*
- Small areas below to well below normal
  - *Western portion of Rocky Mountain Front*
  - *Northeast*

Percent of Normal Precipitation
November 2005



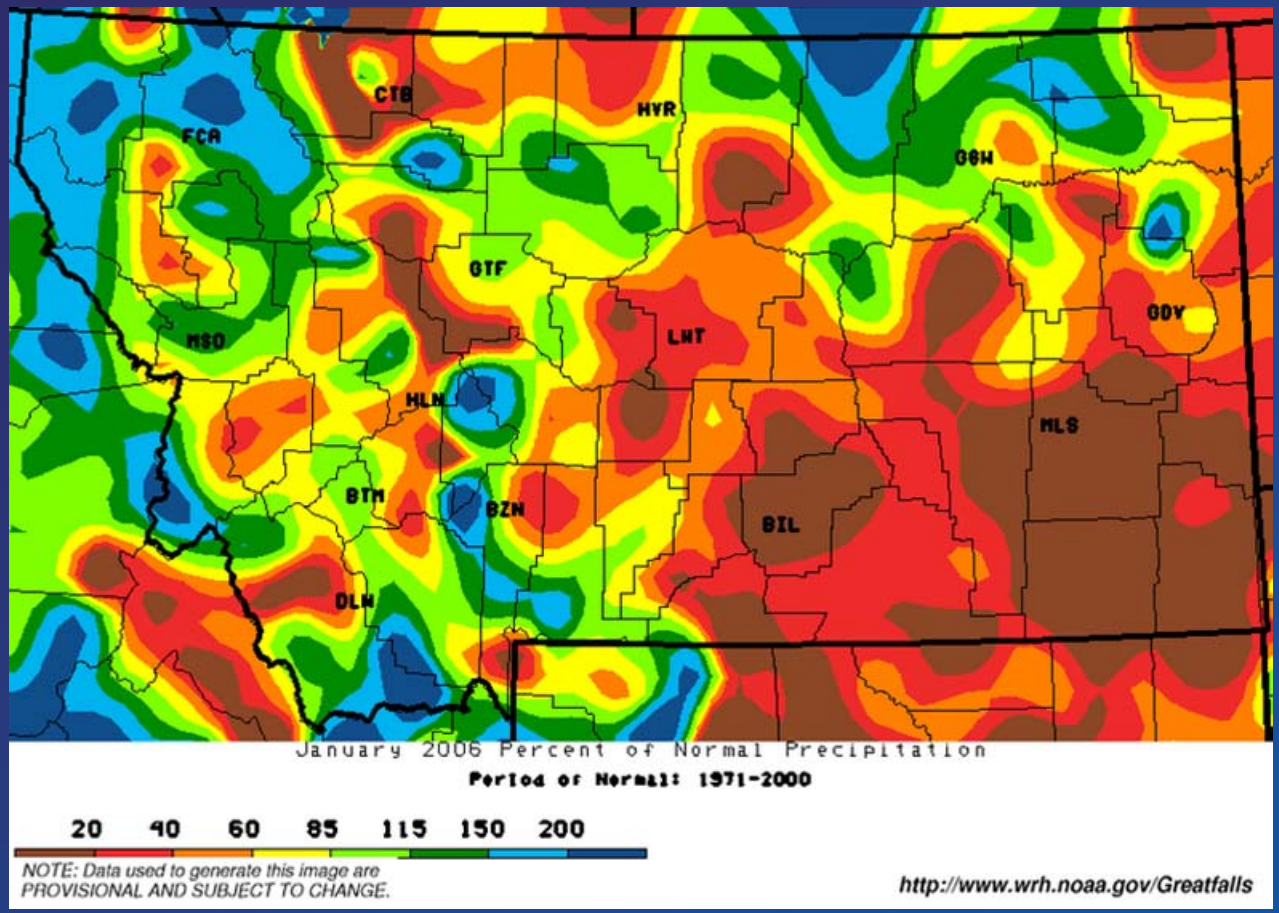
- Most of state near to above normal
- Large areas well above normal
  - *Southwest – central – northeast*
- Some areas below to well below normal
  - *Northwest – Rocky Mountain Front*
  - *Southeast*

Percent of Normal Precipitation
December 2005



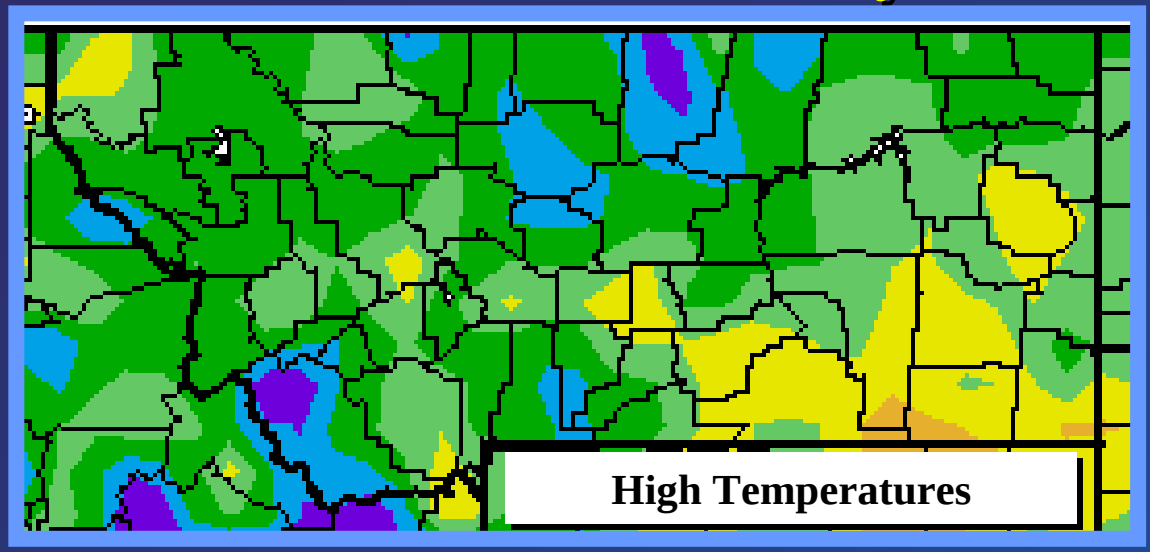
- Drier
  - *About 2/3 of state near to above normal*
  - *Still pockets well above normal*
- Larger areas below to well below normal
  - *Rocky Mountain Front*
  - *Northeast*
  - *South central*

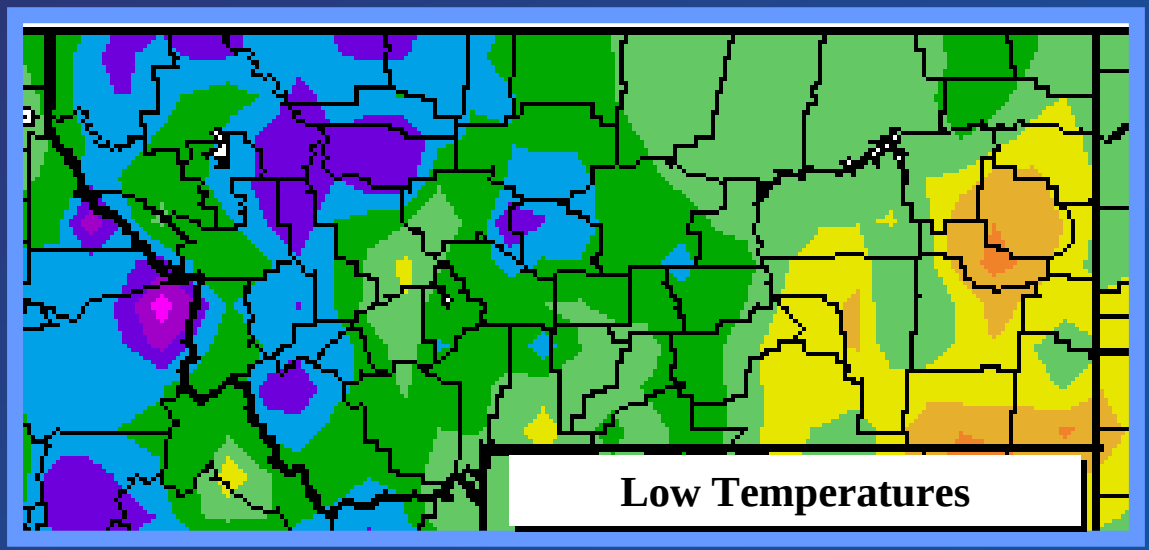
Percent of Normal Precipitation
January 2006

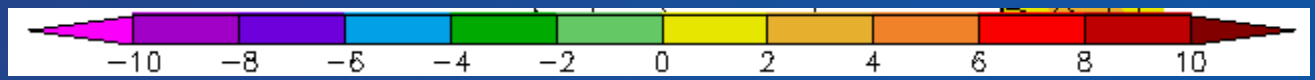


- Drier yet … about 2/3 of state below to well below normal
  - *Rocky Mountain Front*
  - *Central – south central – southeast – northeast*
- Still pockets well above normal

Temperature Anomalies
February 5 – March 6

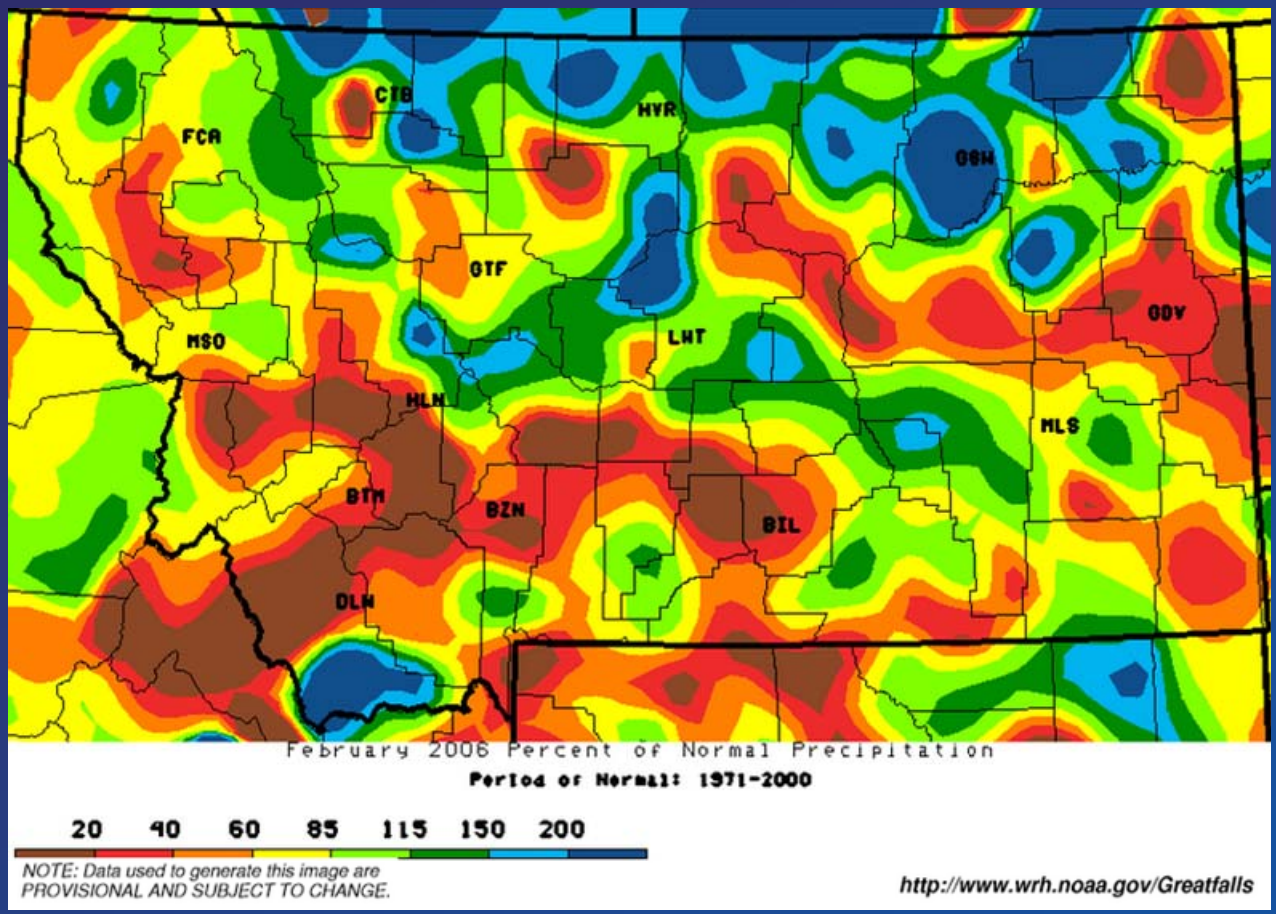






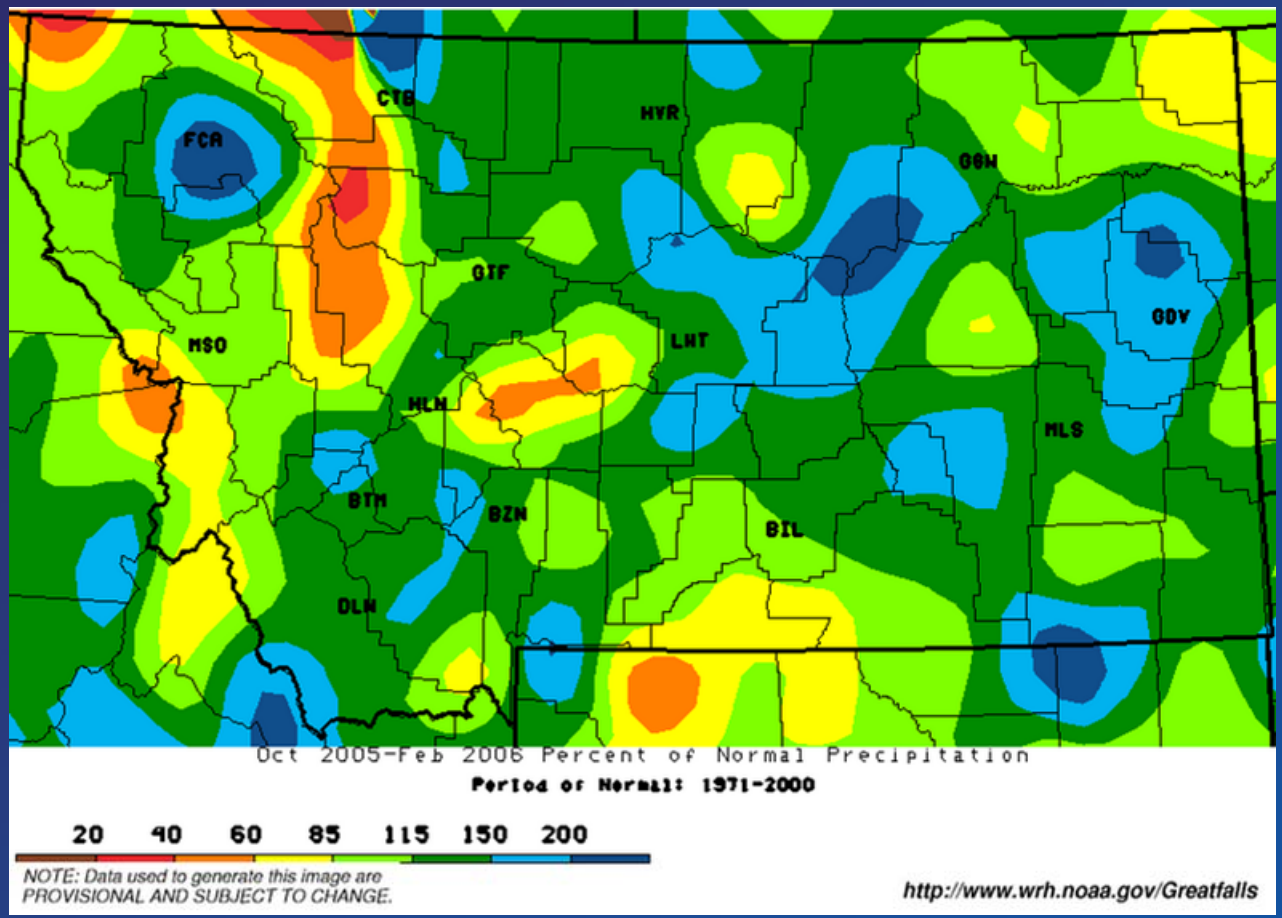
- Temperatures across the state near to below normal
  - *Highs running up to 6 degrees below normal*
  - *Lows generally up to 8 degrees below normal*
  - *Area of southeast Montana near to 4 degrees above normal*

Percent of Normal Precipitation
February 2006



- Above to well above average across hi-line
  - *Had been below average Oct – Jan*
- Still some large areas below to well below average
  - *Southwest – south central*
  - *East*

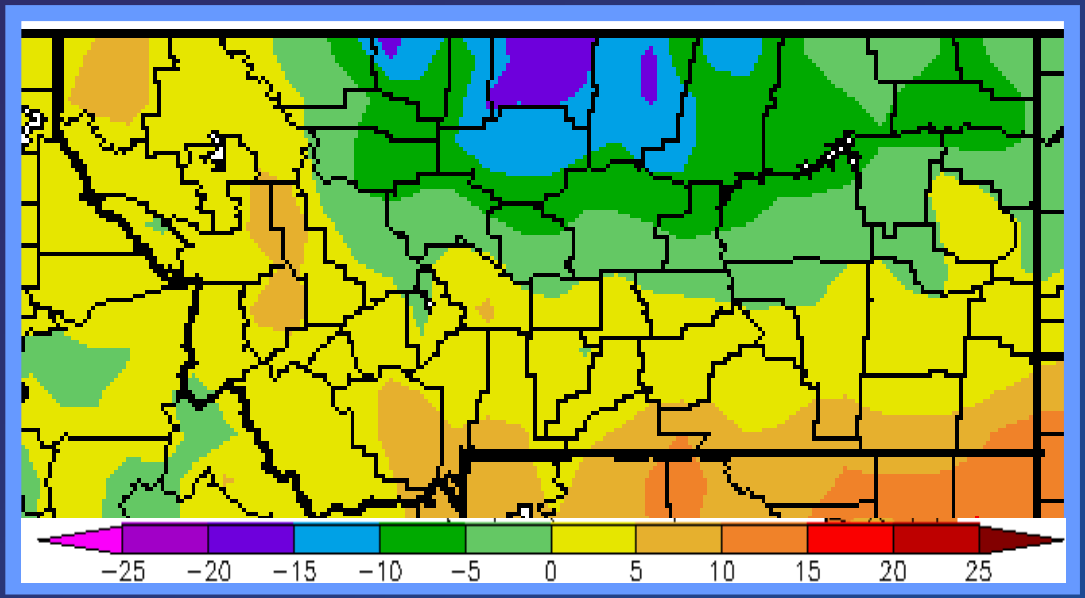
Percent of Normal Precipitation
Water Year 2006



- October 2005 – February 2006
- Most of Montana at least near normal
  - *Large areas above normal*
- Only isolated areas below normal

Departure from Average Temperature

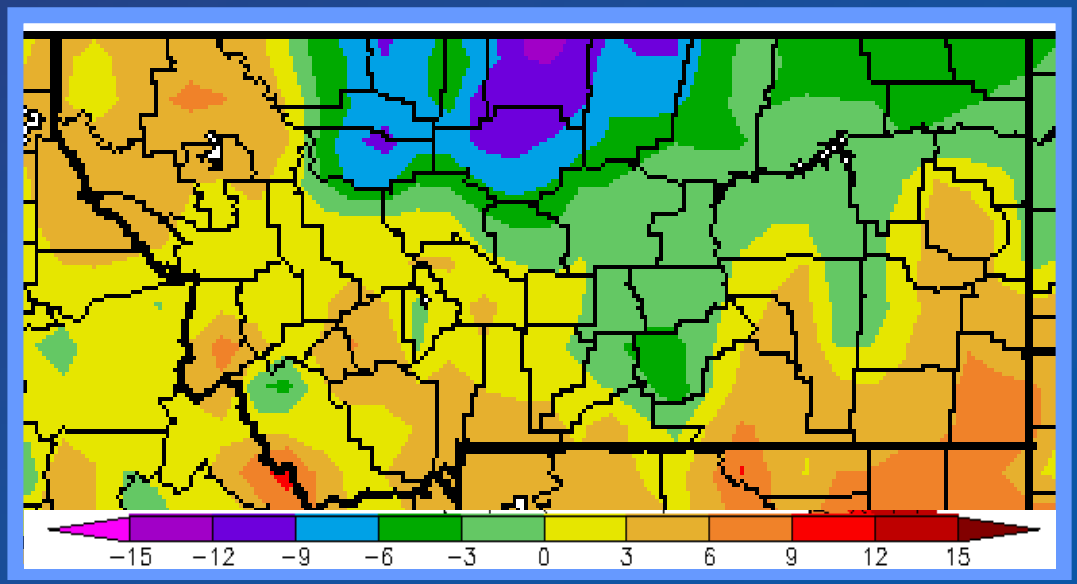
March 1 – March 6, 2006



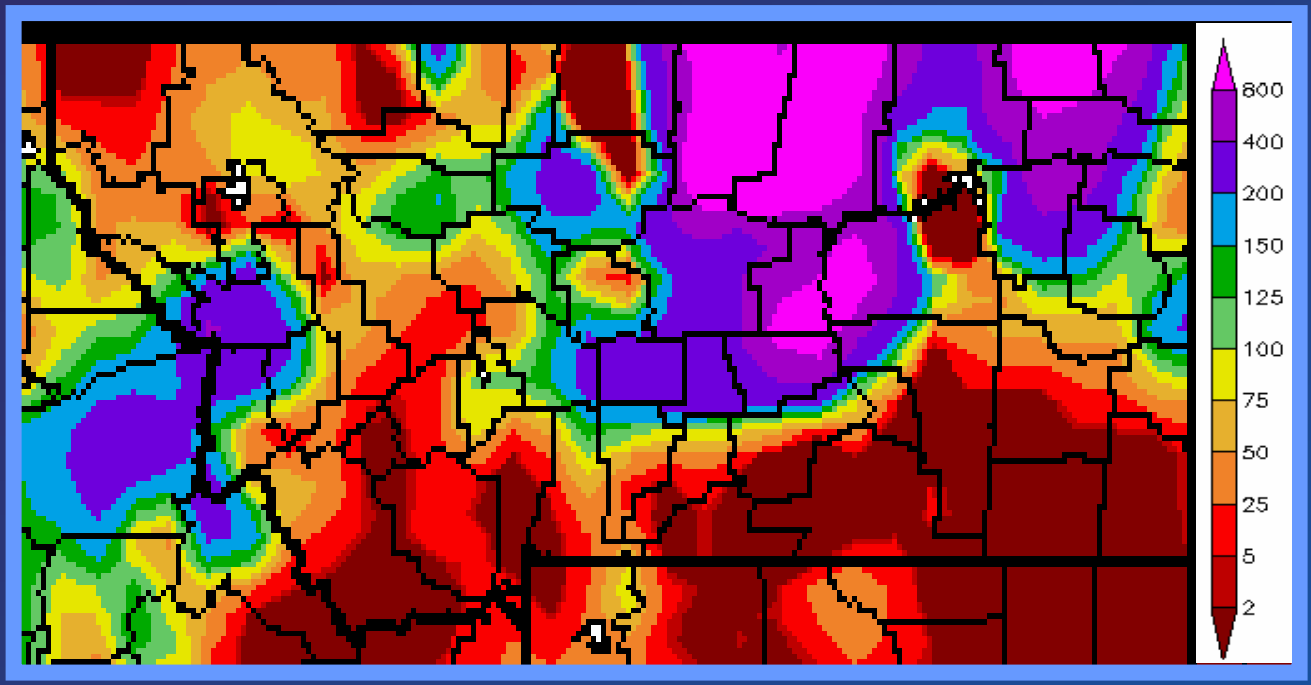
- Warmer west and south
  - *Average highs and lows near to 10 degrees above normal*
- Cooler north
  - *Average highs and lows near to 20 degrees below normal*

High Temperatures

Low Temperatures



Percent of Average Precipitation
March 1 – March 6, 2006



- Much of north central... central and eastern Montana have received above to well above normal precipitation
  - *Upslope/over-running events*
- Northwest... southwest through southeast dry so far this month

Precipitation Totals

March and Water Year 2006

	MARCH 1 - 6				WATER YEAR TO DATE			
	ACTUAL PCPN	NRML PCPN	+/- NRML	% OF NRML	ACTUAL PCPN	NRML PCPN	+/- NRML	% OF NRML
WESTERN MONTANA								
BUTTE	0.00	0.12	-0.12	0	3.17	3.04	0.13	104
KALISPELL	0.20	0.24	-0.04	83	7.65	6.92	0.73	111
MISSOULA	0.68	0.18	0.50	378	6.17	4.95	1.22	125
MULLAN PASS	0.50	0.67	-0.17	75	28.87	19.64	9.23	147
SOUTHWEST MONTANA								
BOULDER	0.01	0.06	-0.05	17	2.77	2.36	0.41	117
BELGRADE FIELD	0.00	0.17	-0.17	0	4.23	3.80	0.43	111
BOZEMAN MSU	0.00	0.22	-0.22	0	6.79	5.26	1.53	129
DILLON AIRPORT	0.00	0.06	-0.06	0	2.09	1.75	0.34	119
ENNIS	0.01	0.12	-0.11	8	4.62	3.13	1.49	148
HELENA	0.01	0.12	-0.11	8	5.47	2.60	2.87	210
LAKEVIEW	0.00	0.30	-0.30	0	5.27	5.88	-0.61	90
LIMA	0.00	0.12	-0.12	0	1.05	2.68	-1.63	39
ROGERS PASS 9 NNE	0.09	0.18	-0.09	50	3.07	4.23	-1.16	73
TOWNSEND	0.06	0.06	0.00	100	2.56	2.04	0.52	125
WISDOM	0.04	0.12	-0.08	33	4.36	3.50	0.86	125

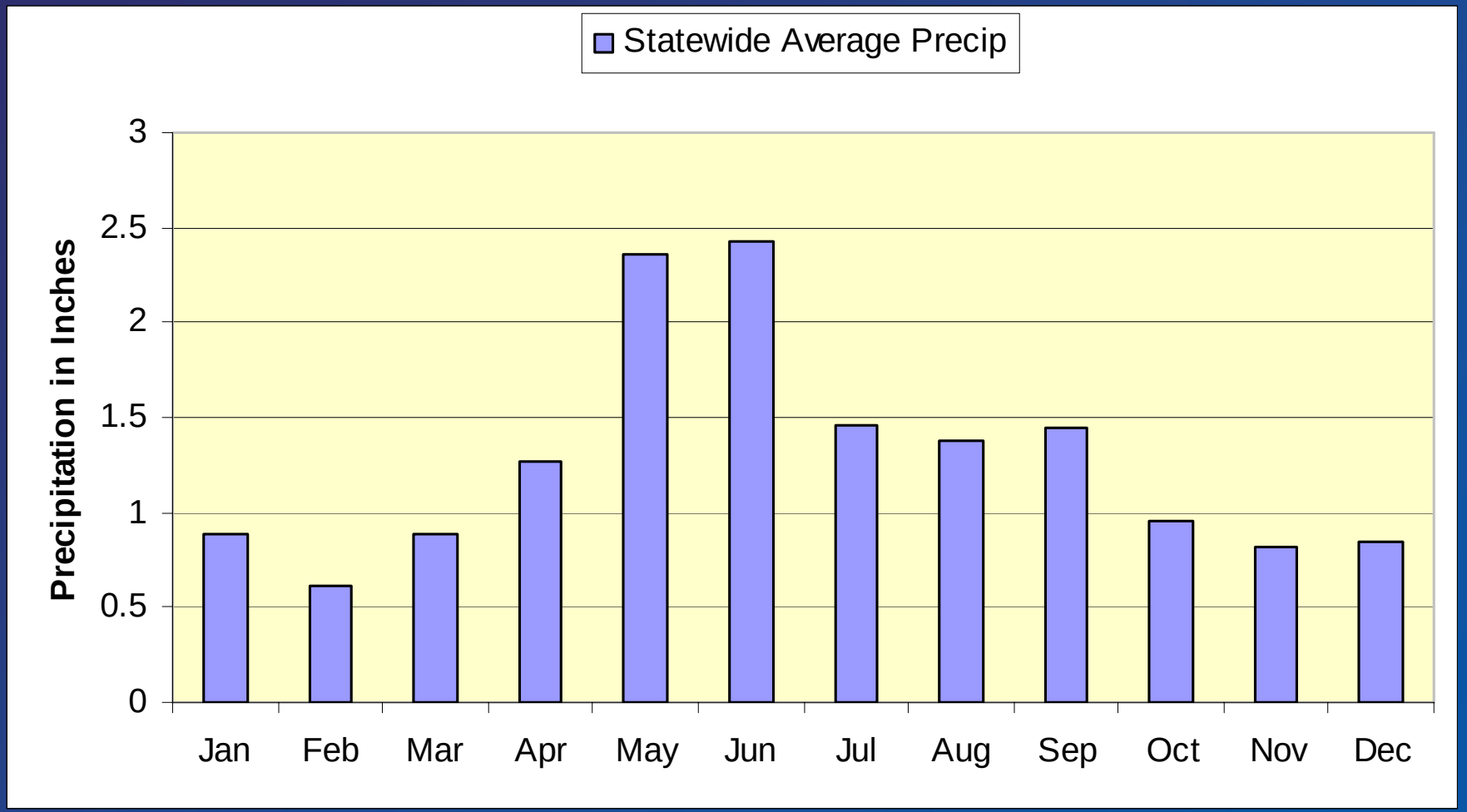
Precipitation Totals

March and Water Year 2006

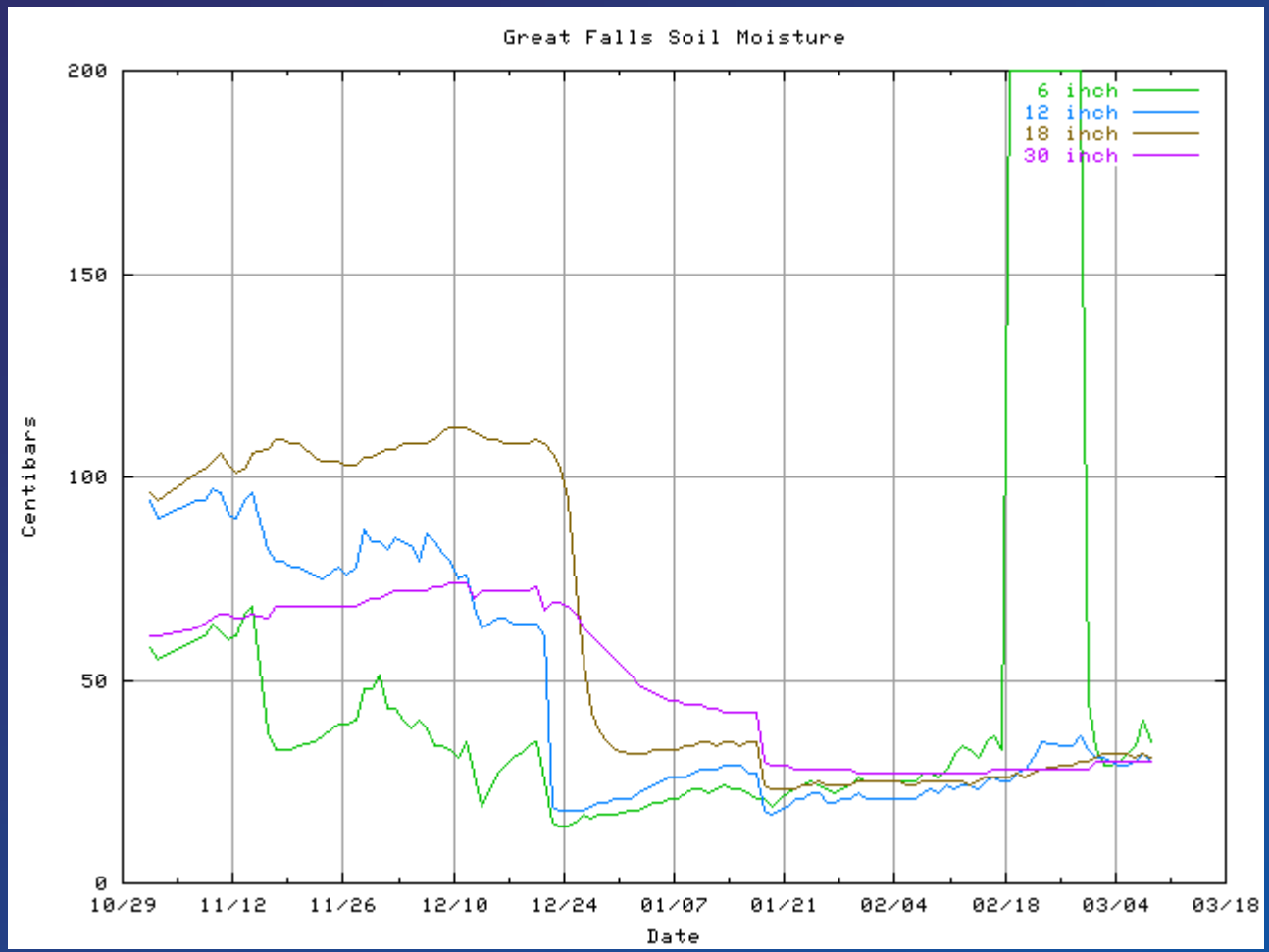
	MARCH 1 - 6				WATER YEAR TO DATE			
	ACTUAL PCPN	NRML PCPN	+/- NRML	% OF NRML	ACTUAL PCPN	NRML PCPN	+/- NRML	% OF NRML
CENTRAL MONTANA								
BILLINGS	0.01	0.17	-0.16	6	3.96	4.17	-0.21	95
CASCADE 20 SSE	0.03	0.12	-0.09	25	3.97	2.90	1.07	137
CHESTER	0.00	0.06	-0.06	0	1.43	1.95	-0.52	73
CHOUTEAU	0.08	0.06	0.02	133	3.36	1.78	1.58	189
CONRAD	0.00	0.12	-0.12	0	1.96	2.39	-0.43	82
CUT BANK	0.00	0.06	-0.06	0	1.17	1.95	-0.78	60
FORT ASSINNIBOINE	0.27	0.12	0.15	225	3.21	2.69	0.52	119
FORT BENTON	0.25	0.12	0.13	208	3.43	2.92	0.51	117
GOLD BUTTE 7 N	0.02	0.12	-0.10	17	2.58	2.54	0.04	102
GRASS RANGE	0.45	0.12	0.33	375	5.46	3.39	2.07	161
GREAT FALLS	0.14	0.16	-0.02	88	3.31	3.56	-0.25	93
HAVRE	0.10	0.12	-0.02	83	2.83	2.53	0.30	112
LIVINGSTON	0.09	0.12	-0.03	75	4.72	3.74	0.98	126
LEWISTOWN	0.39	0.18	0.21	217	4.82	4.27	0.55	113
MARTINSDALE 3 NNW	0.25	0.11	0.14	227	3.05	2.71	0.34	113
NEIHART 8 NNW	0.28	0.21	0.07	133	5.84	5.22	0.62	112
STANFORD	0.05	0.14	-0.09	36	3.13	3.60	-0.47	87
VALIER	0.01	0.06	-0.05	17	2.28	1.95	0.33	117
WHITE SULPHUR SPRGS	0.16	0.12	0.04	133	2.71	2.87	-0.16	94
EASTERN MONTANA								
GLASGOW	0.02	0.06	-0.04	33	2.76	2.16	0.60	128
MILES CITY	0.01	0.06	-0.05	17	3.31	2.98	0.33	111

Statewide Average Precipitation

March is transition to spring precipitation

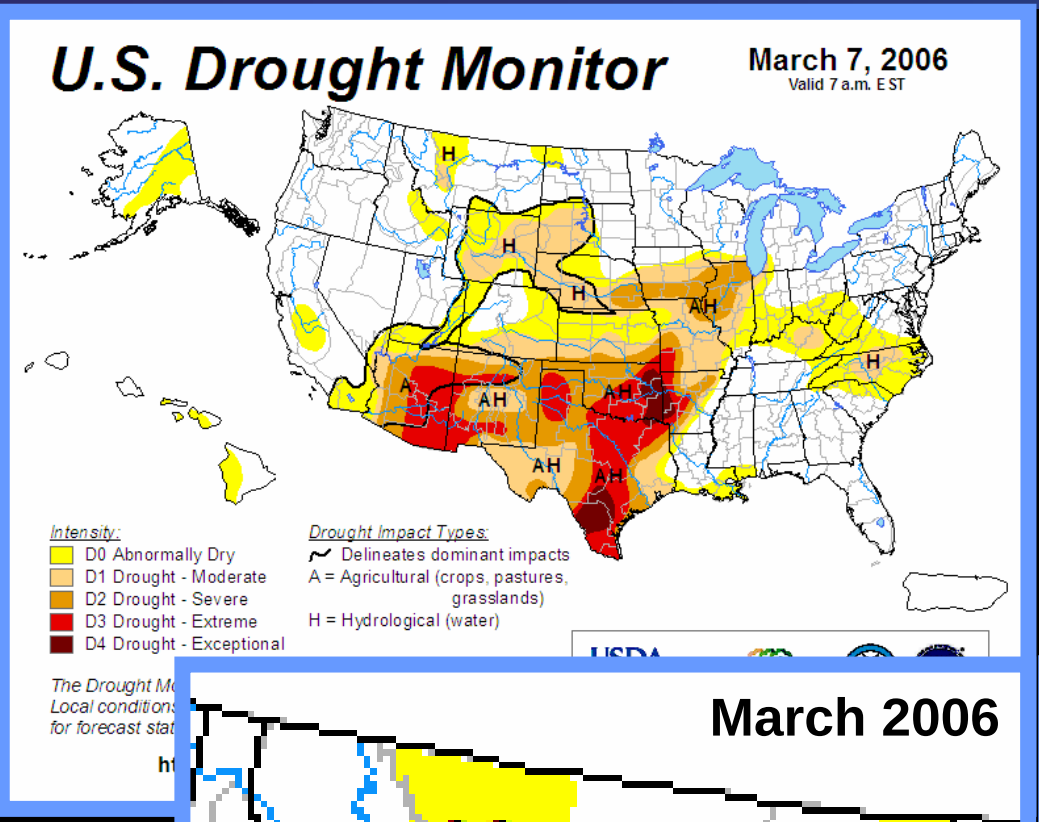


Great Falls Soil Moisture

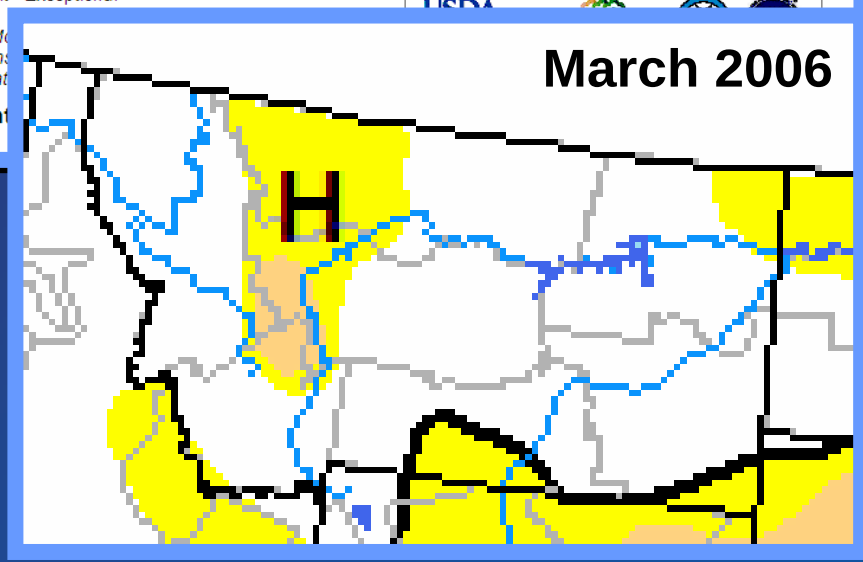


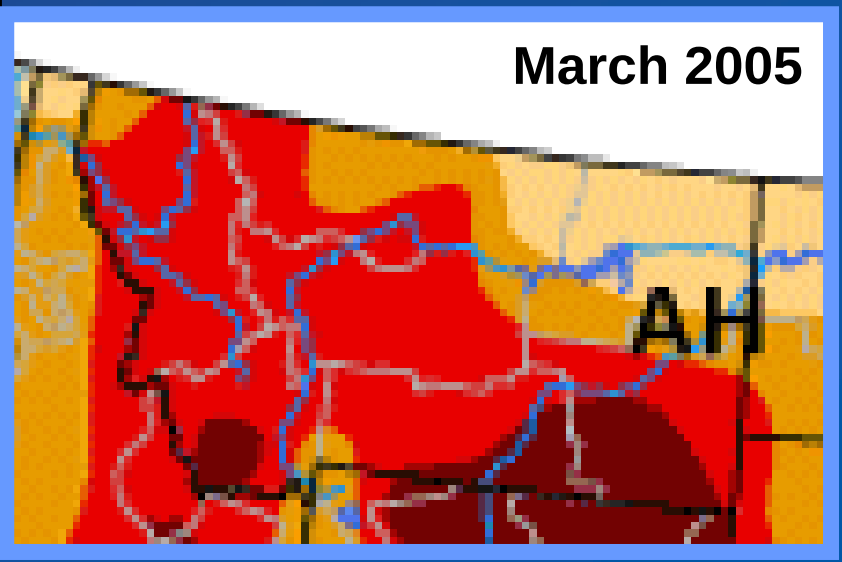
- All levels moist
  - *Between 25 cb and 50 cb*

National Drought Monitor
Issued March 7, 2006

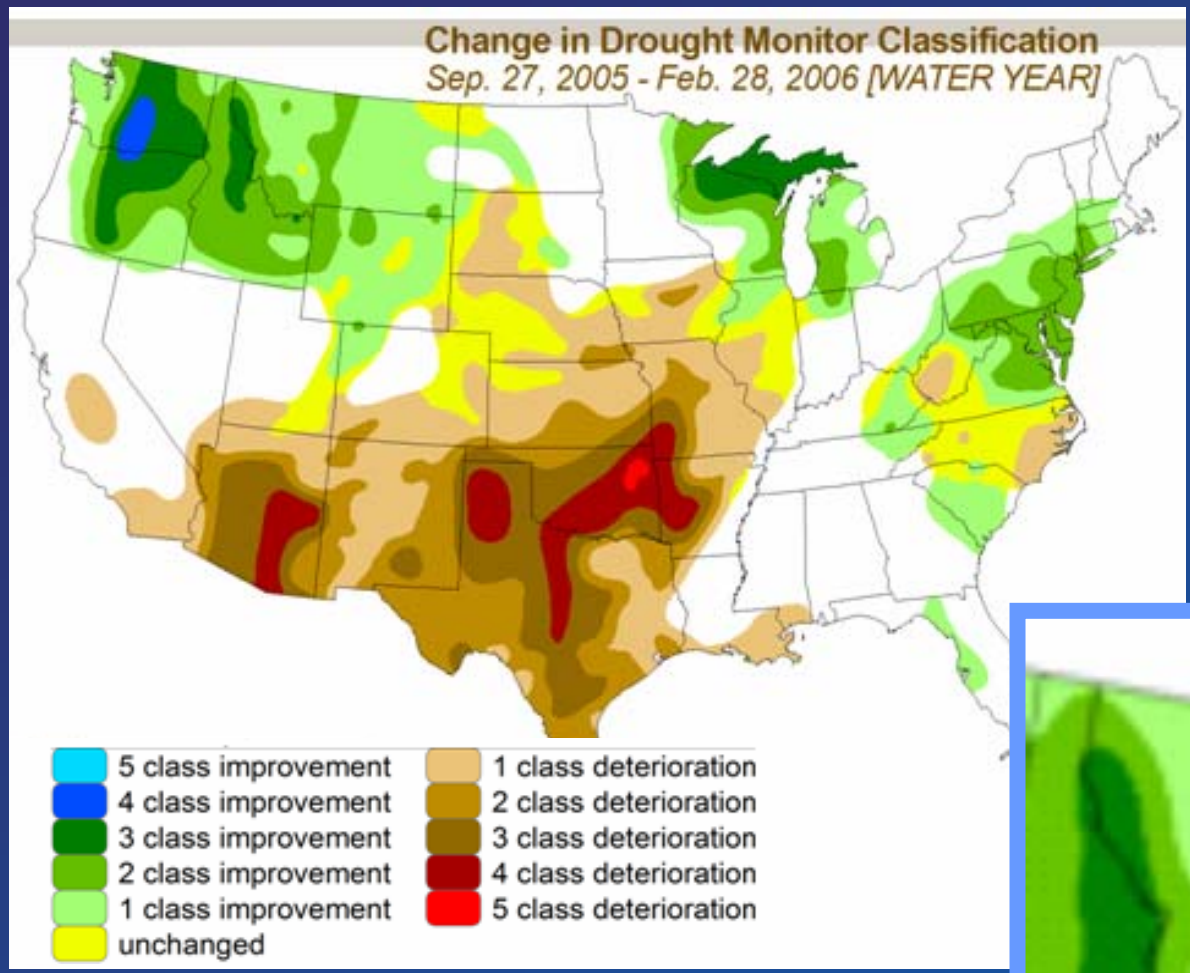


- Most of Montana cleared of any drought category
- Some lingering areas abnormally dry (D0)
  - *Rocky Mountain Front*
  - *South central*
  - *Northeast*
- Isolated area moderately dry
  - *Southern Rocky Mountain Front*



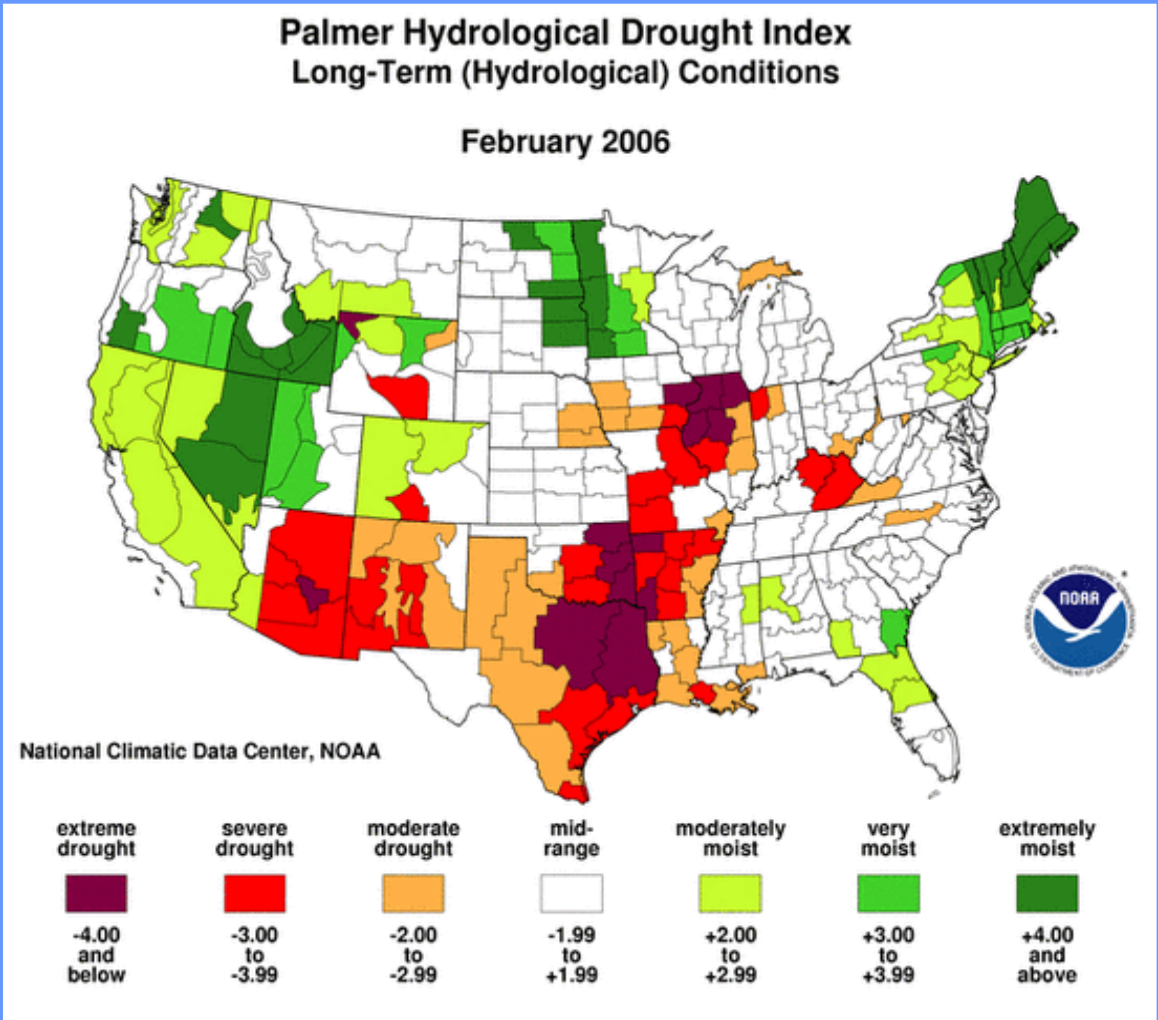


Change in Drought Classification
From Beginning of Water Year



- Most of Montana has improved at least 1 category
- West, southwest and central have areas with 2-3 category improvement
- No area has deteriorated

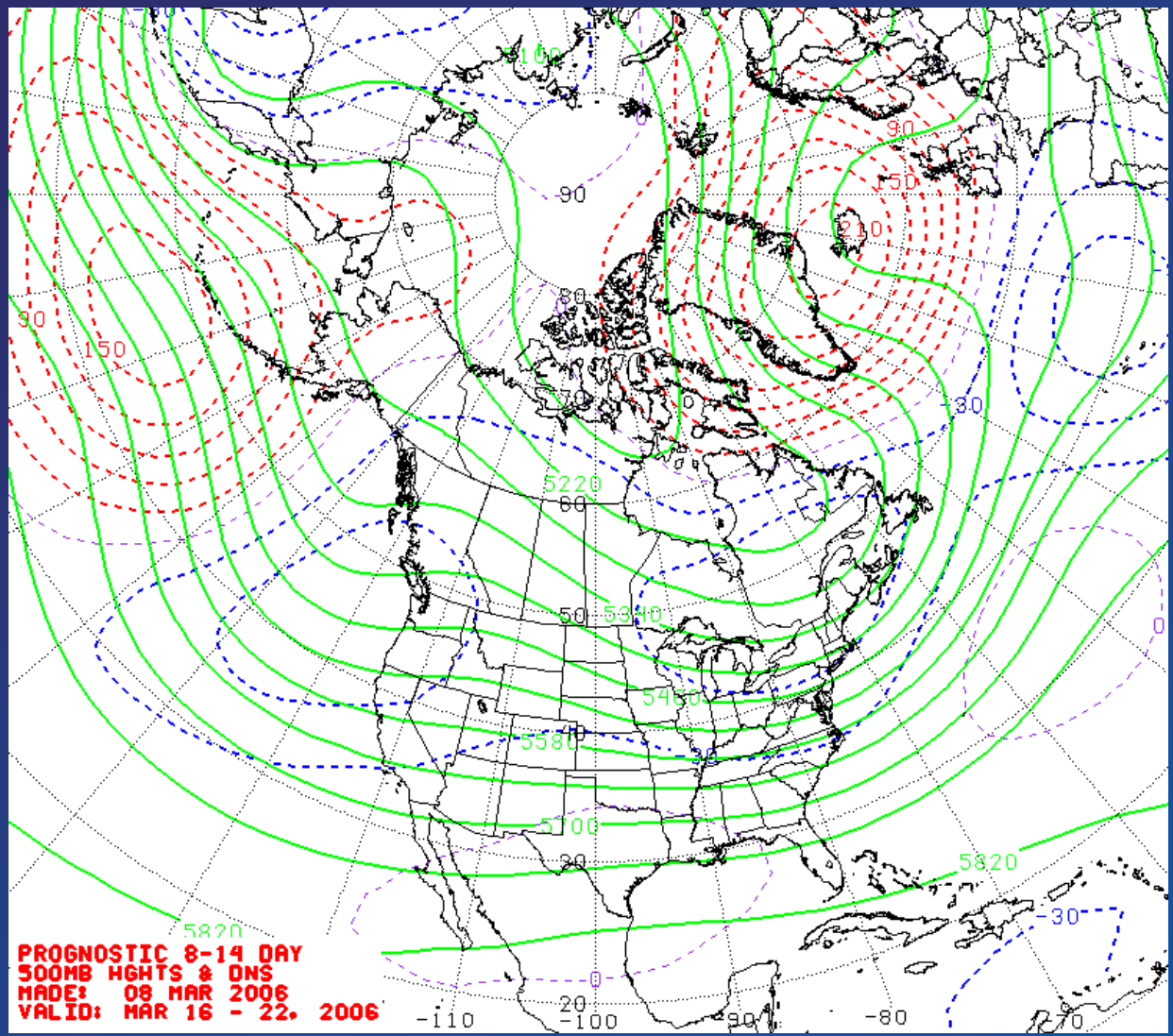
Palmer Hydrological Drought Index
February 2006



- No climate divisions classified as 'Drought'
- 5 climate divisions in 'Mid-Range'
  - *West*
  - *North central*
  - *Central*
  - *Northeast*
  - *Southeast*
- 2 climate divisions 'Moderately Moist'
  - *Southwest*
  - *South central*

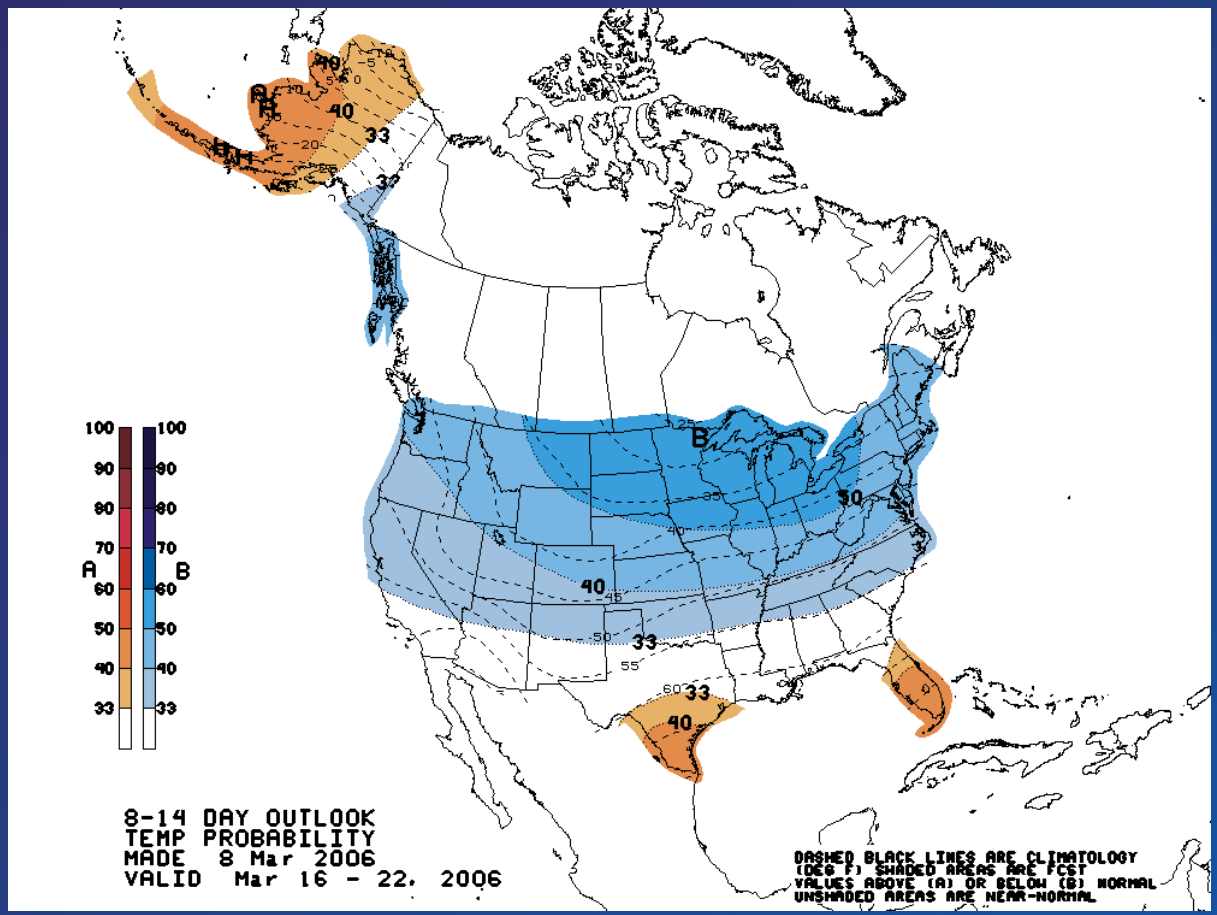
8 to 14 Day Outlook

500mb Heights and Anomalies



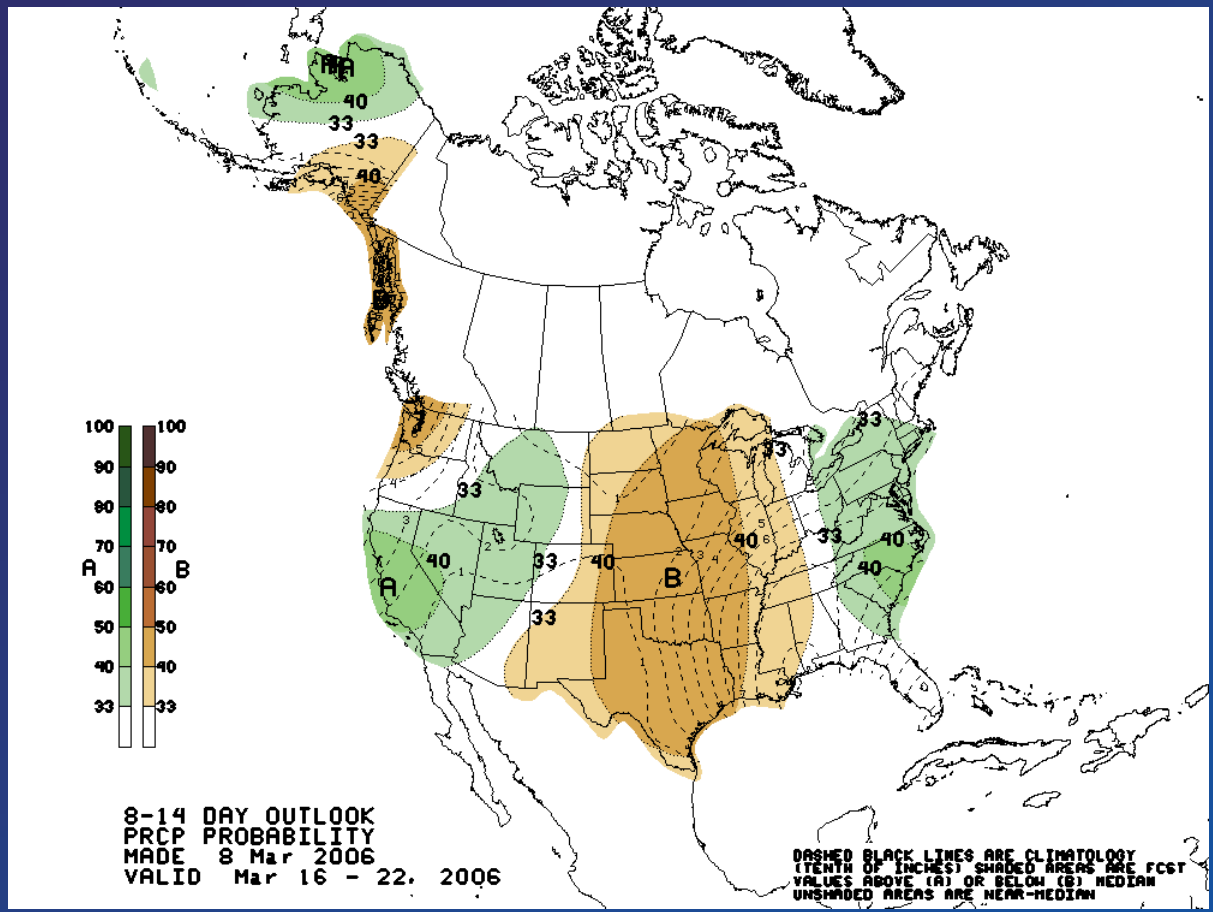
- Long wave trough developing over western U.S.

8 to 14 Day Outlook – Temperatures Cooler



- 40% to 50% chance temperatures will be below normal over western Montana
- Better than 50% chance temperatures will be below normal over eastern Montana
- Averages
  - *Highs – Upper 30s and 40s*
  - *Lows – Teens to mid 20s*

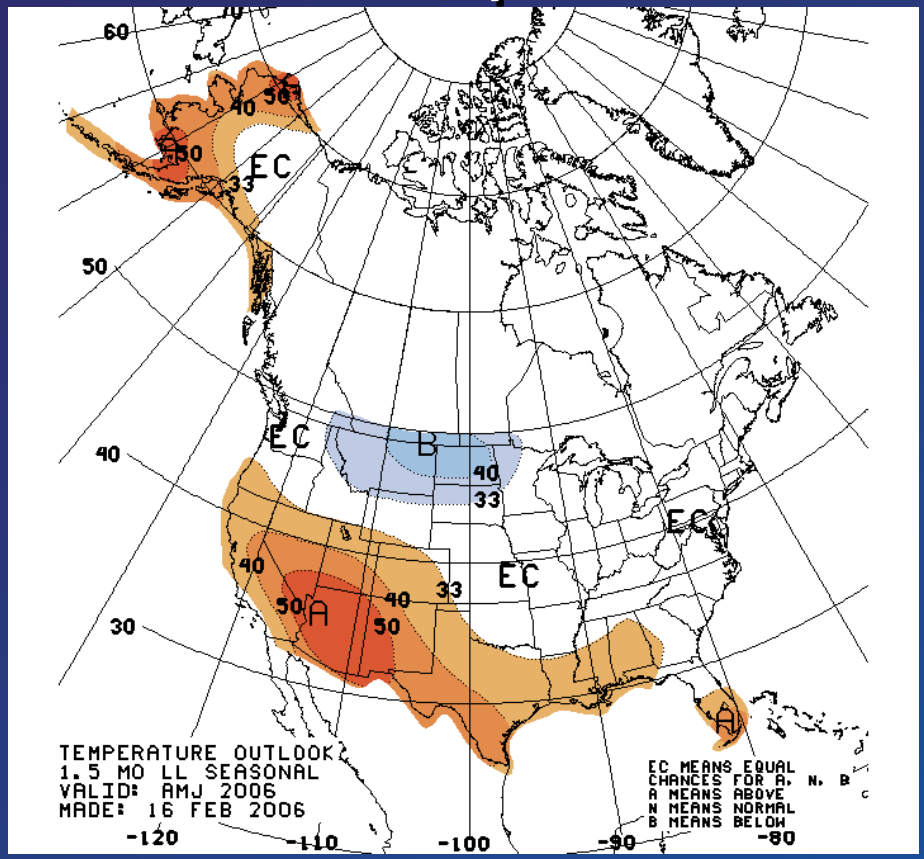
8 to 14 Day Outlook – Precipitation
Spring precipitation



- 33%-40% chance precipitation will be above normal over a large portion of southwest and central Montana
- Remainder of the state has equal chances for above... below or near normal precipitation
- Normals
  - *0.50 to 1.25 inches*

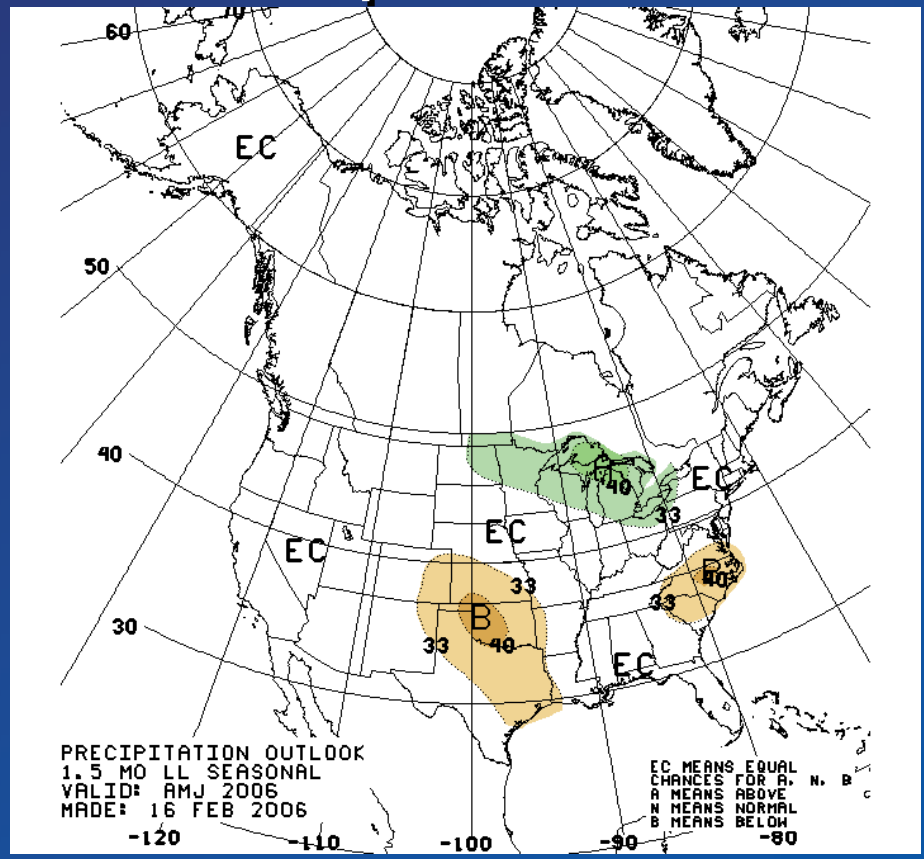
April – June Outlook

Temperature



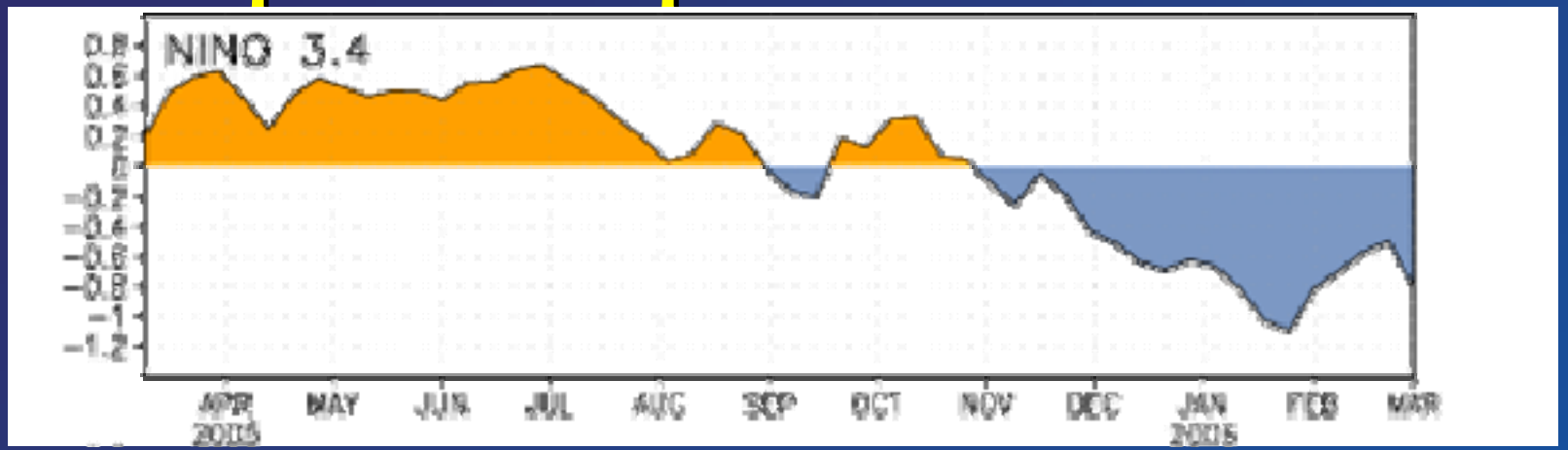
- Better chances temperatures will be below normal across Montana
  - *33% to 40% chance west and south*
  - *40% to 50% chance northeast*

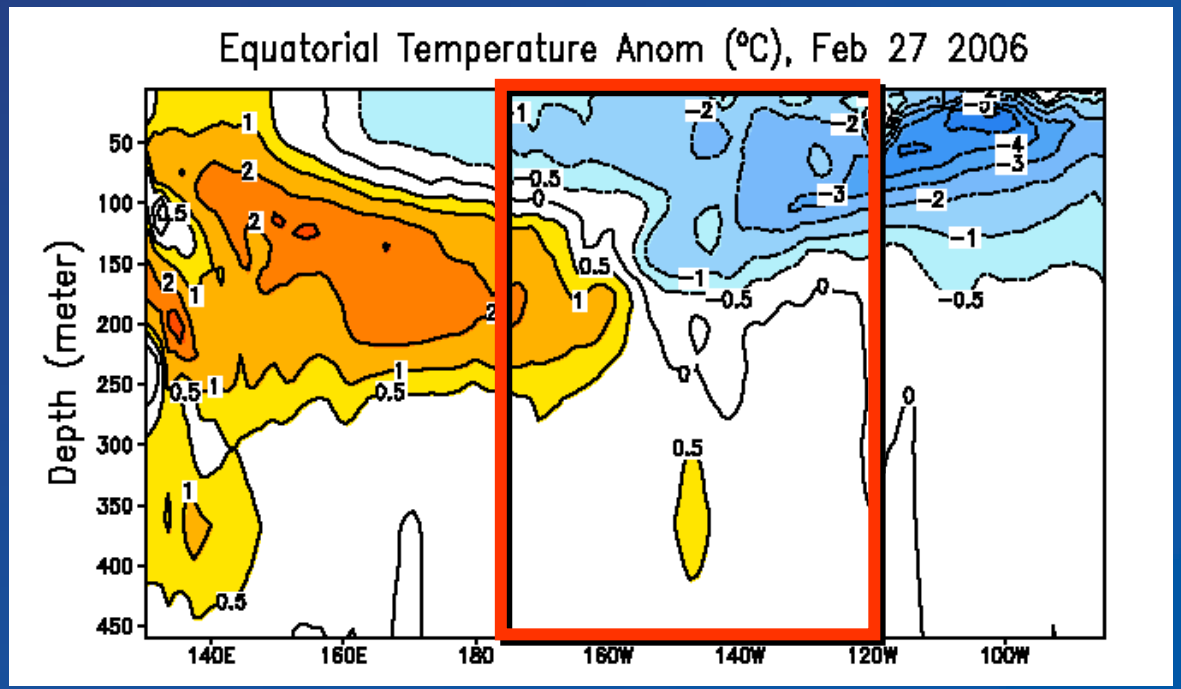
Precipitation



- No forecast skill... therefore equal chances precipitation will be above... below or near normal across all of Montana

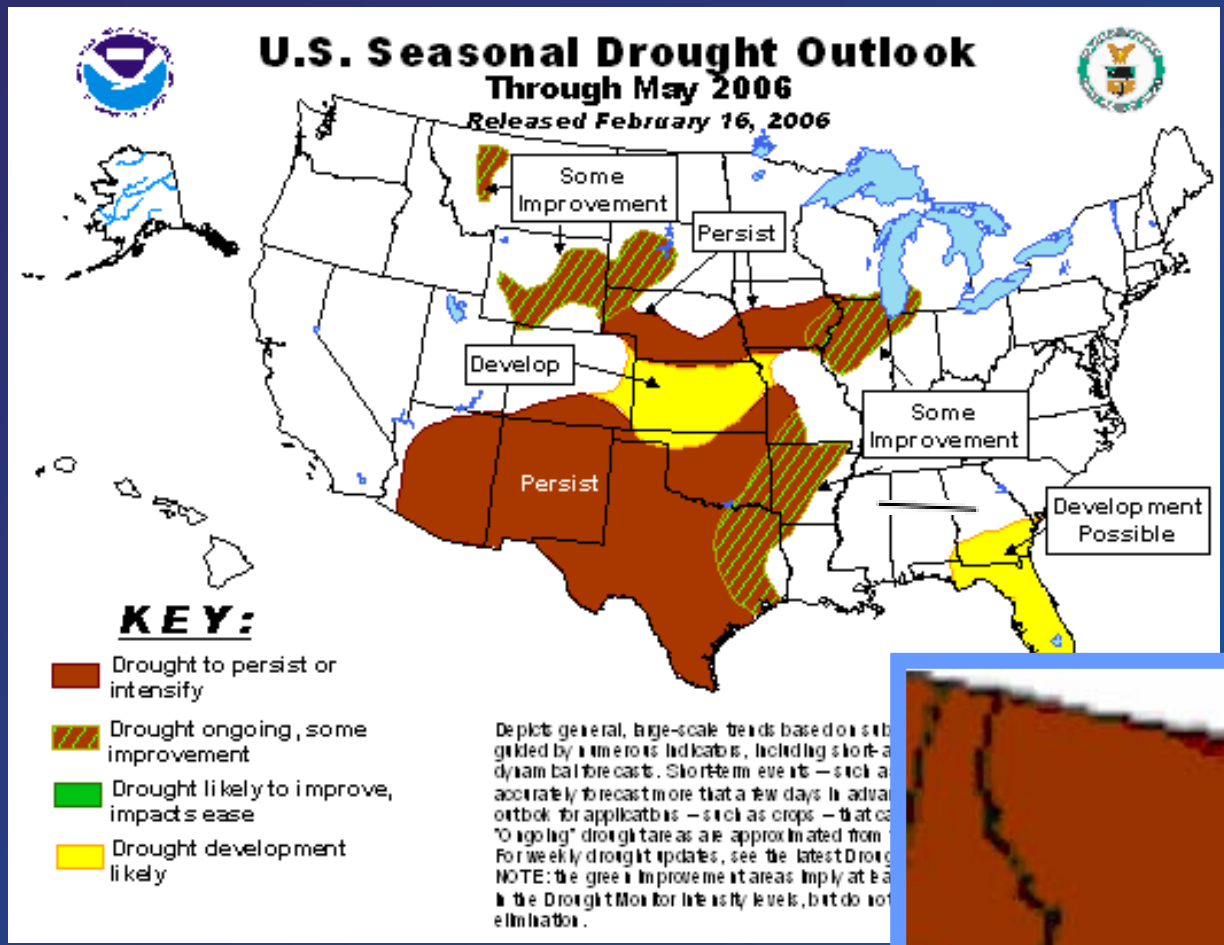
Development of La Niña
Expected to persist next 3-6 months



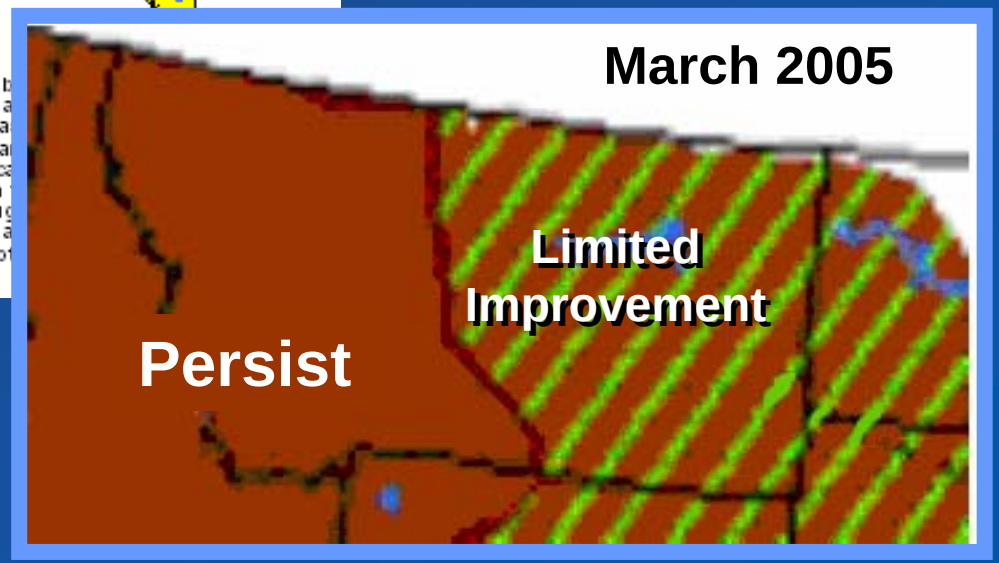


Drought Outlook through May

Issued February 16, 2006



- Areas of drought that remain are expected to improve some through the spring



In Summary...

- **Conditions much better this year than last**
  - ***And the year before that...***
    - ***And the year before that...***
- **Only a couple areas to watch**
  - ***Rocky Mountain Front***
  - ***South central – Carbon County***
- **Currently nothing in forecast that would suggest return to drier regime**

weather.gov

weather.gov/billings
weather.gov/glasgow
weather.gov/missoula
weather.gov/greatfalls